Spring 2018

Scott River
Watershed Council News

514 N. Hwy. 3 Etna, CA 96027

srwatershedcouncil@gmail.com

Spring/Summer 2018

The mission of the Scott River Watershed Council is to facilitate communication and science based collaborative solutions for natural resource concern in Scott Valley. We promote and support education, restoration, and scientific planning and monitoring in order to ensure the sustainability of the natural and human communities of the watershed, now and for future generations. Our leadership in addressing these complex issues will bring effective solutions to the local community and beyond.

SRWC Website

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2018 Snow Survey Summary

Snow survey programs provide mountain snowpack data and streamflow forecasts for the western United States. These data are used for water supply management, flood control, climate modeling, recreation, and conservation. Snowmelt from winter accumulations in the high mountains is the source of about 75% of the region's water supply therefore, water conservation begins with snow surveys. Results from the Klamath National Forest May 1st Snow Survey data show the Scott River Sub-Basin at 5% (Figure 1) of the historic average for snow height and snow water equivalency.

This year, before March and April precipitation events, northern California was on track for one of the worst wet seasons on record. While spring precipitation quenched worried minds and parched mountains, overall, the Sierra Nevada snowpack and water equivalency is around half the historic average. Thankfully, reservoirs are in decent shape from last year's water collection activities when Gov. Jerry Brown declared California's record breaking five-year drought had finally come to an end. Even though last year brought Californian's out of a drought, this year's precipitation is a reminder that we always need to be thinking ahead when it comes to water conservation.

Near Carter Meadows Summit

Snow Course	Height of Snow			Snow Water Equivalent		
	Measured	Historic Average	% of Historic Average	Measured	Historic Average	% of Historic Average
Middle Boulder 1 Elevation 6600'	1.5"	52.1"	3%	0.5"	27.4"	2%
Middle Boulder 3 Elevation 6200'	0.0"	40.3"	0%	0.0"	20.1"	0%
Dynamite Meadow Elevation 5700'	0.0"	22.1"	0%	0.0"	9.8"	0%
Swampy John Elevation 5500'	12.5"	53.0"	24%	5.5"	25.1"	22%
Scott Mountain Elevation 5900'	0.0"	26.0"	0%	0.0"	21.2"	0%
Total average	5%			5%		

Figure 1. May 2018 Snow Survey Results Scott River Sub-Basin

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Coho Enhancement & Restoration Updates

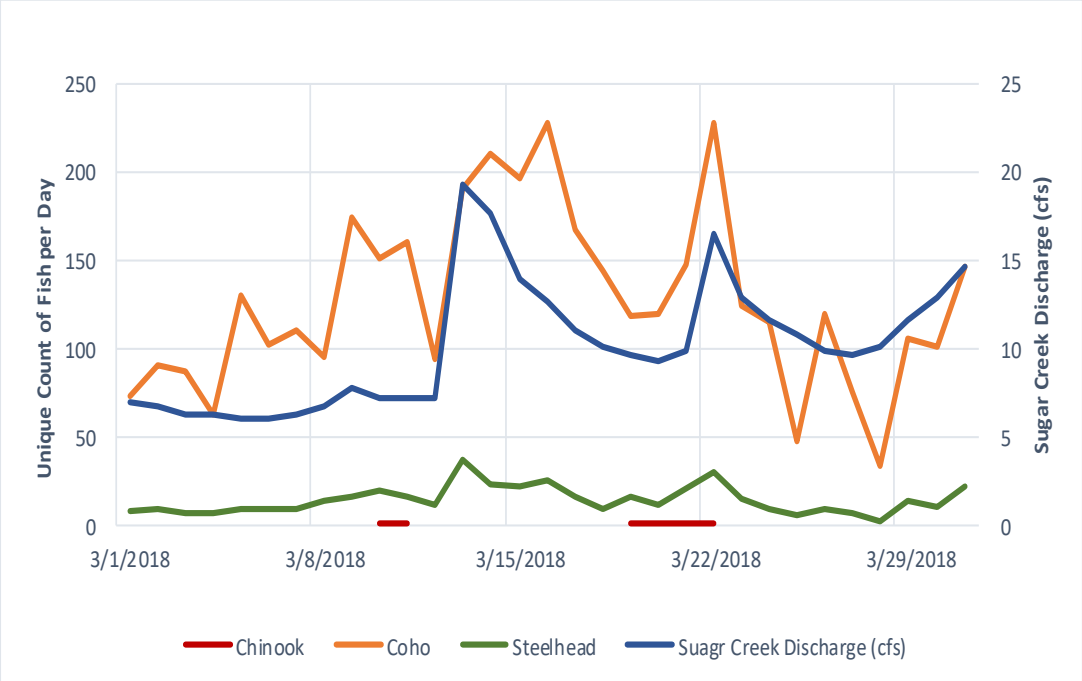
SRWC is looking forward to another year of restoration work in Scott Valley with continued monitoring activities and new project implementation. SRWC published the "Scott River Beaver Dam Analogue Coho Salmon Habitat Restoration Program 2017 Monitoring Report" with encouraging results.

Some key findings include:

- Habitat rearing capacity for juvenile coho increased by 8% relative to 2016, and an overall 20-fold increase in habitat capacity since the project began
- The total area of wetted habitat increased by 11% from 2016
- The volume of aquatic habitat in the BDA ponds increased by about 40% relative to 2016
- Groundwater monitoring suggests that for every 30 cm of height that the BDAs are raised, groundwater levels rise 15 cm or more and as far as .9 km up valley

Last fall, SRWC increased its instream monitoring system to track juvenile salmonid movement at restoration sites. The council now operates 7 antenna arrays that produce data to better understand migration events, residency times and growth of juvenile coho and rainbow trout at restoration sites. With an improved monitoring system this year we were able to experiment with capturing the spring outmigration event of coho smolts from Sugar Creek to the ocean for the first time!

This spring, SRWC will begin on the ground work with our engineer, contractor and field crew to implement habitat improvements on French Creek. This project will include the construction of an off-channel pond for rearing juvenile coho, the installation of large wood and rootwads to create complexity in the main channel and off-channel and gravel enhancement to improve substrate availability for adult salmonids that spawn in the creek.



This graph preliminarily explores the relationship between the movement of chinook salmon, coho salmon, and steelhead with stream discharge at one antenna location on Sugar Creek .

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Protect the Pines by Knowing the Pests!

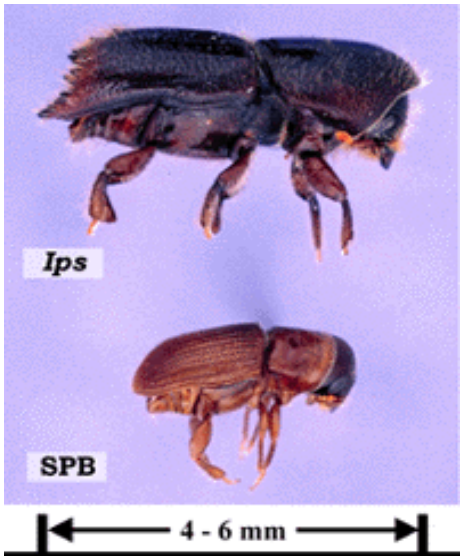
Ips Beetles in California Pines

There are a number of bark beetle species that attack and kill pines in California. Foremost among these are species of *Dendroctonus* and *Ips*. Although species of *Dendroctonus* are considered to be the most aggressive killers, species of *Ips* can be significant pests under certain circumstances and/or on certain hosts therefore, it is critical for landowners who conduct timber management activities know how to limit opportunities for infestation.

While numerous bark beetles colonize pines, only a handful are capable of killing live trees. The majority of bark beetles, including species of *Ips*, are secondary invaders that colonize recently dead, dying, or weakened trees. Those species of *Ips* that kill trees, do so opportunistically and typically only kill trees under stress. Many *Ips* species prefer to attack freshly cut or downed wood, such as logging slash, blowdown or firewood. In contrast, *Dendroctonus* beetles seldom attack cut or downed material, instead preferring standing live trees. *Ips* attacks on live trees can result in top-kill death or death of the entire tree. Such attacks on live trees are frequently preceded by a population increase that resulted from beetle reproducing in cut or downed material. Most tree killing occurs during drought years.

Identifying *Ips*

Ips are shiny black to reddish brown, cylindrical beetles, ranging in size from about 3-6.5 cm. A feature which readily distinguishes them from *Dendroctonus* beetles is the presence of spines on the posterior end of the wing covers.



Management Considerations

The keyword for management of bark beetles is prevention. This is especially true for *Ips* beetles whose tree-killing attacks are often short-lived and may have a clearly identifiable cause. *Ips* beetle populations can build up whenever fresh, recently cut or downed stems or large branches of pine (greater than 3 inches in diameter) are available for the beetles to breed in (hereafter referred to as brood material). However, the creation of this material does not necessarily mean that *Ips* populations will build-up in the material or that nearby live trees will be attacked and killed by *Ips*. Many factors influence the outcome of such a situation. Relevant factors include pre-existing beetle population, the condition of live trees, and various attributes of the brood material. The following activities may promote the build-up of *Ips* populations and/or *Ips* attacks on live trees and should be avoided when possible:

- Piling or stacking brood material adjacent to live pine trees
- Creating large quantities of brood material during
  - Late winter and spring (February-June)
  - During periods of drought
  - When recently dead and dying pines are present, indicating a beetle outbreak is already in progress
- Creating large quantities of brood material anytime high value pines are nearby

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Protect the Pines by Knowing the Pests!

Ips Beetles in California Pines

Treatments to Reduce the Suitability of Brood Material

⇒ ***Lop and Scatter*** is a common practice used in logging operations where large amounts of brood material are generated. It involves removal of branches from pine stems greater than 3 inches in diameter and scattering the stems in a sunny location. This subjects the brood material to maximum solar radiation, which heats it and promotes drying, both of which discourage beetle colonization. This treatment also reduces fire hazard.

⇒ For small quantities of brood material, an alternative treatment is ***covering with plastic.*** In this case, the material is stacked and covered with clear plastic sheeting that is a minimum of 6 mm. thick. Stack in a sunny location of possible. The covering should completely seal the pile so that there are no openings to the outside and should remain in place for a minimum of several months during the summer or longer during cooler weather.

⇒ Other treatments include removal of the material from the site, piling and burning, chipping, and debarking. Following the above guidelines will help prevent a large percentage of pine mortality and top-kill that is caused in *Ips*.

Characteristics of Attack

Ips beetles are particularly efficient at locating and colonizing freshly downed or cut stems and large branches of trees. If there are sufficient beetles available to respond to the attractant odors of downed brood material, the result is a rapid and thorough colonization of the host material. *Ips* also attack standing live trees, but typically do this only if their populations are high, the trees are under stress, and there is no other suitable host material available.

Boring dust on bark indicating a beetle attack

The first sign of *Ips* attack is the presence of boring dust in the cracks and crevices of the bark. This is a yellowish or reddish-brown material that is pushed out by the beetles as they construct their galleries. When a pine is successfully attacked by *Ips*, its foliage fades from green to yellow to reddish-brown. If the tree is top-killed, this color change will be restricted to the upper part of the crown.

Top kill or crown fade indicating a beetle attack

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Etna Farmers Market

The goodness of fresh farm produce grown close to home!

Farmers markets are ancient and simple. Many parts of the world have a tradition of farmers markets going back for centuries. In today's rush for one-stop convenience shopping and year-round availability of foods from the global marketplace, our communities all too often have lost touch with the productivity of our small local farms. The Etna Farmers Market is carrying on its own version of this ancient tradition with a unique collection of independent, local growers, bakers, and crafters who have come together to offer their home-grown and home-made products for sale directly to Scott Valley consumers.

The Etna Farmers Market was organized and started in 2012 by Kyle and Carrie Peterson and Katherine Chaplin and is certified with the state of California and supports all of Siskiyou County's participation. This small market is joining the ranks of thousands of others across the US to meet the continued demand for community supported agricultural programs. The USDA reported the number of farmers markets operating from 2006-2014 increased by 180%, which reflects a growing engagement with sustainability nationwide. Also, according to Census of Agriculture data, farms that conducted direct-to-consumer (DTC) sales at farmers markets, Community Supported Agricultural programs, and other similar outlets were more likely to stay in business than those who didn't.

These statistics aren't surprising though, considering the many benefits. Farmers markets play an extremely important role for bringing urban and rural communities together while creating economic growth and increasing access to fresh, healthy foods. 100% of the money you spend at the farmers market goes to support farms in the community, not the middle-man or corporate headquarters. Impoverished families can use food stamps at most farmers markets which means better health and lower obesity rates for poor families. Additionally, farmers markets are good for the environment. According to the Farmers market Coalition, the local produce you'll find at farmers' markets travels about 27 times less distance than conventionally-sourced produce. Further, 81% of these farmers use farming practices that reduce waste and promote soil health.

By supporting our local Etna Farmers Market, we can create more opportunities for diverse, affordable, and organic foods and products closer to our homes. So, expect to see the Etna Farmers Market in full swing on Saturdays from 10-noon beginning June 9th in the parking lot of Dotty's restaurant. This year there will be 10-14 vendors each week featuring local, organic produce, meats, eggs, oils, lotions, pastries, bread, flowers, dried foods and sweets. See you at the market!

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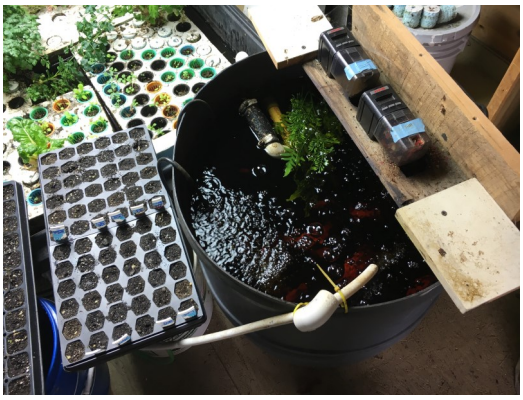
New Methods in Home Gardening

Aquaponics 101

"What is it called again?" is the response local Etna resident Megan Peterson often gets when she first describes her and her husband Darrel's aquaponics garden. Aquaponics is a sustainable method of raising both fish and vegetables. It's a form of agriculture that combines raising fish in tanks (recirculating aquaculture) with soilless plant culture (hydroponics). In aquaponics, the nutrient-rich water from raising fish provides a natural fertilizer for the plants and the plants help to purify the water for the fish. Aquaponics can be done year-round and indoors. "We get more food with less water, because the water recirculates", Peterson described, "and we don't have to weed." Peterson still enjoys gardening the "traditional" way, with soil that is, as was apparent when we toured her vibrant strawberry patch and a new experiment to cultivate truffles from some oak saplings she has inoculated, but she is mostly focused on developing the family's aquaponics system.

Transplanting starts into floating rafts where the plants will mature to harvest

Aquaponic systems are scalable and currently, the Peterson's "garden bed" is approximately a 4x4x2' tub filled with water that is pumped from a 55 gallon drum where the fish live. The plants are supported by a foam raft with a hole for each plant that floats on the surface of the water in the tank with the roots dangling freely in the water below. For indoor growing in the winter, there is a light suspended above the plants. They move their system outside during the warmer months, and eventually plan to grow year-round with the system in a greenhouse. This system supplies the Peterson family of four with all the fresh herbs and greens they need. "This is one of the cleanest systems for food production out there," Peterson said, "because if there is a pest infestation like aphids, even a chemical-free pesticide would harm the fish, so I introduce lady bugs or lacewings instead." To maintain the functionality of the aquaponics natural ecosystem, no other herbicides, pesticides, or chemicals can be used. The effluent from the fish is highly nutritious and provides the plants with what they need for optimum growth while the plant roots clean and purify the water that is sent back to the fish tank. The Peterson's like to grow a variety of herbs, lettuces, watercress, celery, kale and chard. Currently goldfish are driving their system, but eventually they would like to produce trout so they can consume fish from their system in addition to vegetables, which is a common use for aquaponic systems.



Fish tank and water recirculation

Surprisingly, the bulk of the maintenance is tending to the crops themselves. Crops grow in about half the time as soil gardening so it's important to harvest frequently to avoid bolting up top and a tangle of root mass below. Not a bad problem to have, and did I mention there is no weeding?

Who is SRWC?

Jeff Horner serves on the Board of Directors to be part of an organization that is out to help farmers and ranchers develop projects that improve both their operations and fish and wildlife habitat. He is passionate about finding ways that farming and ranching can go hand-in-hand with managing natural resource and wildlife. Jeff moved to Scott Valley with his wife and children in 2010 from eastern Oregon to manage a cattle ranch and has been in the ranching business for over 20 years. In his free time, Jeff enjoys camping, woodworking and just spending time out in nature.

Michael Stapleton serves on the Board of Directors as a means of getting to know the great people and landscape of Scott Valley. Michael is passionate about ranching and wildlife, including fisheries, living hand-in-hand. As winters and summers continue getting warmer, Michael is also concerned about water scarcity. He believes that finding solutions to these issues is an important function of SRWC. After serving in the military, Michael graduated from HSU and worked in forestry and civil engineering. He is now retired from Caltrans after 30 years. After retirement, Michael and his wife built a small ranch in Scott Valley raising horses, cattle, poultry and hay. He enjoys exploring the backcountry by horseback and big game hunting.

Betsy Stapleton serves on the Board of Directors because she believes in SRWC's mission of collaboratively seeking solutions to the complex natural resource challenges facing Scott Valley. Betsy is passionate about finding common ground on natural resource issues to preserve rural life, and she is concerned about climate change and the increasing climate variability. She thinks science is fun and interesting, and supports SRWC in performing sound science to inform decision making. Betsy worked as a Nurse Practitioner for 35 years and moved to Scott Valley with her husband Michael after raising three children in Eureka., and now have two grandchildren. Betsy now enjoys operating a small ranch with her husband and riding their horses in the surrounding mountains.

Charnna began her work with SRWC as a board member and was appointed as the Executive Director in 2014. Charnna full heartily supports the mission of SRWC and believes in local, community control. Charnna has worked for the past 20 years as a real estate broker, and is currently a student at SOU in the Environmental Science and Policy/Biology program. Charnna enjoys spending time with her family and dogs, hiking and exploring Northern California. Charnna is committed to work to bring people together, seeking opportunities where trust and partnerships can be formed to work on natural resource issues that face the Scott River and Klamath River basin.

Who is SRWC?

Dan Gerson serves on the Board of Directors and values ensuring the sustainability of the Scott River watershed for the flora and fauna that depend in it and the humans that enjoy it. Dan is retired and now enjoys spending his time in nature, especially up French Creek or in the Marble Mountains. He also enjoys listening and watching all of the great things that the wilderness has to offer.

Jess McArther oversees contract and grant compliance for SRWC to ensure that we are getting the most out of the funds that are given to us, thus doing the most we can for our environment. Jess values being able to provide positive input into our community and ensuring that community members understand how they can positively impact riparian health.

Jess is also the full-time mom of two rambunctious toddlers and one teenager. When her time allows, she loves connecting other families in Etna, and reading, hiking and fishing with her family.

Amanda Schmalenberger works as SRWC's administrative assistant and bookkeeper. Amanda grew up in Scott Valley and is passionate about ensuring the success of natural resource management and local commerce. She values keeping water on the landscape and community sustainability. Amanda lives on her family ranch with a motley crew that consists of her husband, two children, two dogs, nine chickens and the occasional visit from other wildlife. She enjoys playing in the river during the summer and hiking their property and surrounding mountain ranges.

Kristen Sellmer works as a project coordinator and over sees SRWC's instream monitoring system to track juvenile salmonids at restoration project sites. She is focused on implementing community based restoration projects to enhance and conserve freshwater habitat within a sustainable agro-economy landscape. Kristen has been working in natural resource management for 8 years and engaged in fisheries related work in California, Idaho and Alaska, but Siskiyou County is where she calls home. Kristen enjoys skiing, mountain biking, fishing, crafting and camping with her loved ones.

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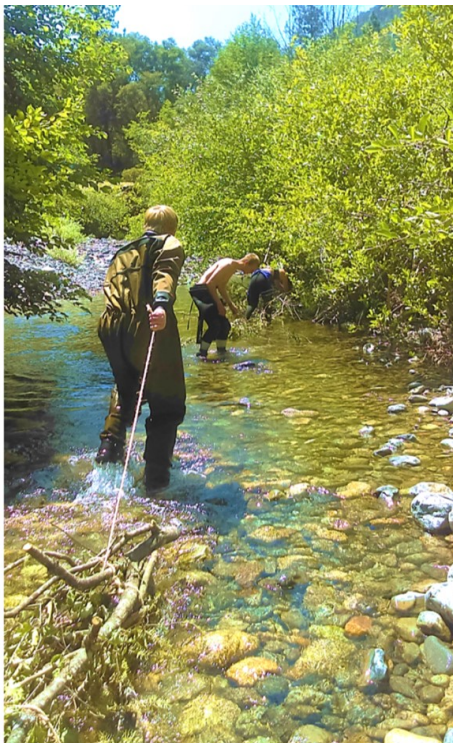
Who is SRWC?

Larry Alexander is a Scott Valley native and believes in its rural way of life and community involvement. He believes that being engaged in community efforts is the best way to contribute to the changing landscape. Larry is the Executive Director of the NCRC with a degree in biology and many years of natural resource planning, hydrology, and wild land fire. He believes that with a growing population, regulatory issues, and outside pressures on our area, we vitally need to do

Other SRWC board and staff that we'd like to recognize; with their stories to come in the next addition!

- Craig Thompson, Board Member
- Steve Ziegler, Board Member
- Mike Bryan, former Board Member
- Erich Yokel, Monitoring Supervisor
- Linda Baily, Field Technician
- Dale Munson, Field Technician

Siskiyou Youth Environmental Summer Studies (YESS)



YESS crew enhancing juvenile fish habitat on the Salmon River in 2017

We are excited for another year of hosting students from Etna High School in our YESS program and would like to officially welcome the 2018 crew on board! Students will be working on restoration projects throughout the watershed with various organizations to gain field experience in natural resource management and environmental science work.

Thank you to our partners: Salmon River Restoration Council, Quartz Valley Indian Reservation, U.S. Forest Service/YCC, and Etna PAL.

Be sure to check out our calendar for upcoming events, meetings, and presentations!

We would like to thank our funders without whom non of this would be possible. Funding for the SRWC and newsletter is provided by the United States Fish and Wildlife Service. Scott River Watershed Council work is also supported Bella Vista Foundation, the Klamath River Coho Enhancement Fund, Klamath National Forest Service and California Department of Fish & Wildlife. SRWC also has many volunteer hours donated each month along with private donors who support the mission of the Council and our restoration efforts within the Scott River watershed. If you would like to help support Scott River Watershed Council please consider donating at scottriverwatershedcouncil.com